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"APPROVED FOR RELEASE: Monday, July 31, 2000

CIA-RDP86-00513R000929820

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Sverdlovsk, Medgiz, 1946. 98 p. (MIRA 14:2)
(FRACTURES) (OSTEOMYELITIS)

"APPROVED FOR RELEASE: Monday, July 31, 2000

CIA-RDP86-00513R000929820

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"Scientific Work of the Hospital Surgical Clinic of the Sverdlovsk Medical Institute," Vest. Ak. Med. Nauk SSSR, No. 1, 1948.

Academy of Medical Sciences.
Hospital Surgical Clinic, Sverdlovsk Med. Inst.

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SO: U - 3850, 16 June 53, (Letopis 'Zhurnal 'nykh Statey, No. 5, 1949)

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SO: U-3850, 16 June 53, (Letopsis 'Zhurnal 'nykh Statey, No. 5, 1949)

LIDSKIY, A. T.	arter intervals of 2-3 was to 3-5 yrs, showed good results. Book was published by Acad Med Sci, 1950.	Wedicine - Tissue Transplants (Contd) (Contd) Liso reports on expts by N. M. Milin 1935 and 1st published in 194; deartilage taken 2-3 hrs and evodeath of the donor. Biopsy in the	Reviews Vinogradova's book on her work with animals and humans dealing with the possibility of transplanting cartilage taken from fresh corpses. Biopsy performed 2½-10 yrs after the original operation in cases of autotransplants and 2 wks-3 yrs after the original operation in cases of homotransplants showed the visbility of the grafts.	g & .	
		zeszenenia poloczanozowane	n en		Alsoning and the Control of the Cont

Prof.	Page 1 of 2 pages	
bentonite paste was used extensively. One I tahnin plus 1.5 parts of streptocide plus 7 parts of bentonite plus 2-3 parts of boiled form a good mixt (occasionally tannin plus tocide are replaced by tannoflavin). Salves plaster of Paris bandages are of limited use plaster of Paris bandages are of limited use plaster may be seepage so that application of films are effective in some types of burns, there may be seepage so that application of Sollux lamp is necessary. Tissue therapy, plied, should not be delayed. One must not that in cases of extensive burns hypoprotein that in cases of extensive burns hypoprotein may develop (Yu. Yu. Dzhanelidze). Intraventinjection of dissolved dry plasma by the drinjection of dissolved dry plasma by the	"Sow Med" Vol XV, No 7, pp 12- In the open method of treatmen heated by means of elec lamps (RMnO4, slcoholic soln of brill vocain, etc. Freatment with the ther forms a closed film. But metabolism, causing acidosis. publications, tannin does not the liver (D. S. Sarkisov). Duser/Medicine - Burns (Contd 1)	USSR/Medicine - Burns "Treatment of Burns," Norenberg, Dr Med Sci
tenilly tenill		- Burns Burns," Prof A. T. Lidskiy, Med Sci Sverdlovsk
sively. One part of tocide plus 7.5 rts of boiled water tannin plus strepavin). Salves and of limited useful-perforated fibrin pes of burns, but pplication of a sue therapy, if application of a superior to the area of the sum of the drip sum by the drip 204743	the burn is ind painted with lant green plus nounnin plus alc plus in trauma disturbs Contrary to foreign woduce necrosis of ming World War II, 204T43	Jul 51

LIDSKIY, A. T., Prof.

Page 2 of 2 pages

UBSR/Medicine - Burns (Contd 2)

Jul 51

method has been successfully applied in authors' clinic. Secondary and late shock must be prevented. Antiseptic effect of penicillin and gramicidin in burns has been overestimated: It is better to rely on cleaning with soap, ether, etc. The authors use swabbing with 0.25% ammonia 30 min after applying 2% pantopon plus scopolamine in the case of small burns. With extensive burns, anestensia by means of ethyl chloride is required.

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LIDSKIY, A.T.

Controversial problems in the surgery of pulmonary suppurations. Vest. khir. Grekova, Leningr. 71 no.5:31-40 1951. (CLML 21:1)

1. Professor. 2. Sverdlovsk.

"APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R000929820

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Korabel'nikov I.D.
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586<u>9</u>:

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"Diagnosis of acute stomach." Reviewed by Prof. A.T. Lidskii.
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(STOMACH--DISMASMS)

(STOMACH--DISMASMS)

LIDSKIY, A.T., professor; KAMPEL'MAKHER, Ya.A., kandidat meditsinskikh nauk

Splenectomy as a method of therapy of certain blood diseases;
immediate and long-term results. Khirurgiia no.7:21-30 J1 '54.

(MLRA 7:10)

1. Iz kafedry gospital'noy khirurgii (zav. zasluzhennyy deyatel'
nauki chlen-korrespondent Akademii meditsinskikh nauk SSSR prof.
A.T.Lidskiy) Sverdlovskogo meditsinskogo instituta.

(HEMOPOIETIC SYSTEM, diseases,
surg., splenectomy)

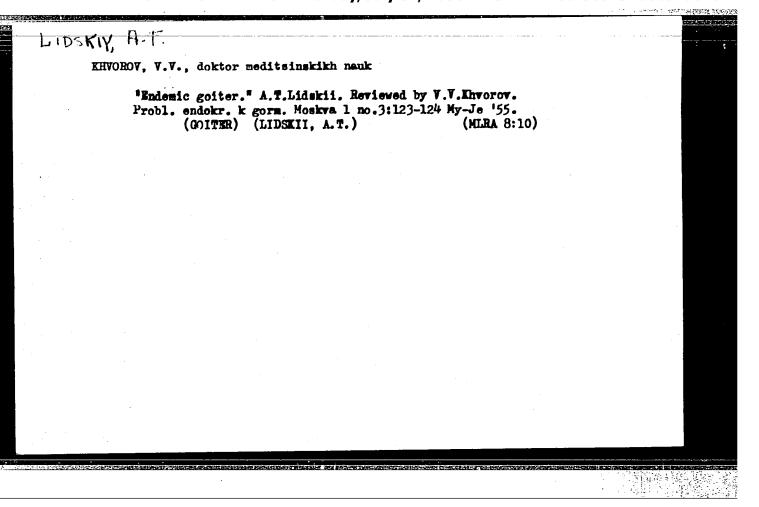
LIDSKIY, A.T., professor (Sverdlovsk)

Surgical treatment of thyroid diseases in the Urals. Probl. endokr.
i gorm. 1 no.2:32-38 Mr-Ap '55. (MLRA 8:10)

1. Zasluzhennyy edyatel' nauki, chlen-korrespondent Akademii meditsinskikh nauk SSSR, prof. A.T.Lidskiy (Sverdlovsk)

(GOITER,
endemic, surg.)

(HYPERTHYROIDISM, surgery)



LIDSKIY, A.T., prof., Zasluzhenny deiatel'nauki (Sverdlovsk)

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LIDSKIY, A.T., professor (Sverdlovsk)

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1. Zasluzhennyy deyatel nauki chlem-korrespondent AMN SSSR (CHOLECYSTITIS, surg. indic.)

LIDSKIY, A.T., professor (Sverdlovsk)

Endemic goiter. Sov.med. 20 no.8:18-25 Ag 156.

(01:9 ARIM)

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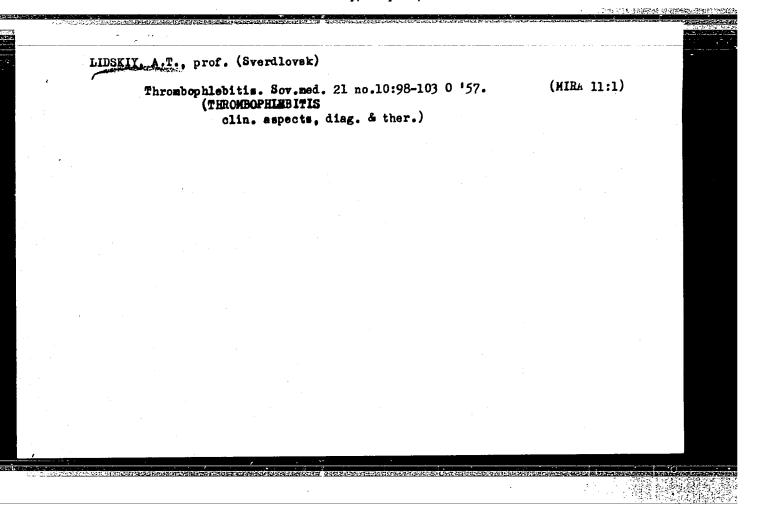
LIDSKIY, A.T., professor (Sverdlovsk)

Portal hypertension as a surgical problem. Enirurgita 32 no.6:
3-13 Je *56. (MIRA 9:10)

(HYPERTENSION, PORTAL, surg.
in animals & man)

LIDSKIY, A.T., professor

"Malignant growths of the rectum" by S.A. Kholdin. Reviewed by A.T. Lidekii. Khirurgiia 32 no.12:79-81 D '56. (MIRA 10:2) (RECTUM-CANCER) (KHOLDIN, S.A.)



LIDSKIY, A.T., professor (Sverdlovsk).

Surgery of thoracic organs. Manka i zhizn' 24 no.3:14-16 Mr '57.
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1. Zaslushennyy deyatel' nauki, chlen-korrespondent Akademii meditainskikh nauk SSSR.
(CHEST--SURGERY)

LIDSKIY, A.T.

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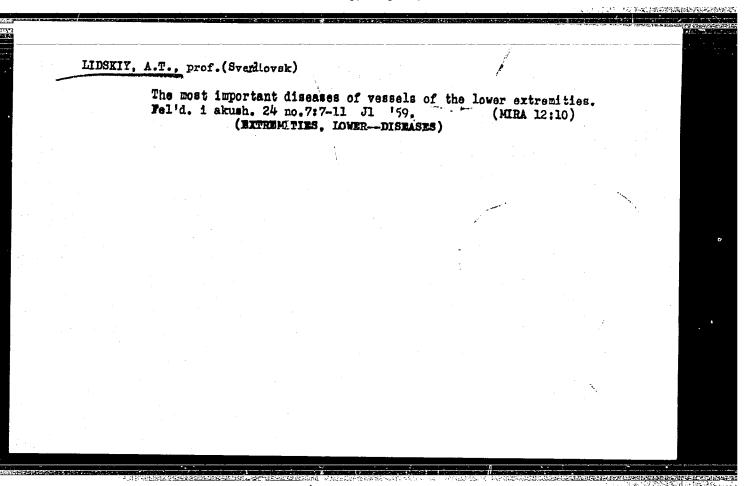
(BLOOD VESSELS) (DOLGO-SABUROV, B.A.)

LIDSKIY, A.T., prof. (Sverdlovsk, Bankovskiy per., d.8, kv.31); SHELOMOVA,

Some problems in lung surgery. Vest.khir. 79 no. 9:110-120 S '57. (MIRA 10:11)

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Sverdlovskogo meditsinskogo instituta i khirurgicheskogo otdeleniya
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(IUWS, surg.
review)



LIDSKIY. A.T., prof.

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(SUTURES) (ANTIBIOTICS)

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1. Chlen-korrespondent AMN SSSR. (THYROID GIAND--DISEASES)

LIDSKIY, A. T., (Prof.) -- Sverdlovsk

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Varicose veins. Zdorov'e 6 no.8:14-15 Ag '60. (MIRA 13:8)

1. Chlen-korrespondent AMN SSSR. (VARIX)

LIDSKIY, A.T.

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Mutual understanding and assistance between surgeons and therapeutists in modern clinical medicine, Klin, med. 38 no.8:43-47
Ag *60. (MIRA 13:11)

1. Chlen-korrespondent AMN SSSR. (SURGERY) (THERAPEUTICS)

LIDSKIY, A.T., prof. (Sverdlovsk) Mesenterial pyemia in the modern treatment of surgical infections. Vest, khir. 85 no.10:3-9 0 '60. (MIRA 13:12) (APPENDICITIS) (SEPTICEMIA)

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1. Zasluzhennyy deyatel nauki chlen-korrespondent AMN SSSR. (GALL BLADDER-DISEASES)

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(HEMORRHAGE) (PEPTIC ULCER) (MEDICAL EMERGENCIES)

LIDSKIY, A.T.

V.V. Parin and F.Z. Meerson. Reviewed by A.T. Lidskii. Khirurgiia no.10:136-138 0 '62. (PHYSIOLOGY) (HLOOD-CIRCULATION) (PARIN, V.V.) (MEERSON, F.Z.)

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GOL'DGAMMER, K.K., doktor med.nauk(Moskva); DRACHINSKAYA,
Ye.S., prof. (Leningrad); KORNEV, P.G., zasl. deyatel' nauki,
prof. (Leningrad); LEVIT, V.S., zasl. deyatel' nauki, prof.
[deceased]; LIDSKIY, A.T., zasl. deyatel' nauki prof. (Sverdlovsk);
NAPALKOV, P.N., zasl. deyatel' nauki prof. (Leningrad); PETROV, B.A.,
prof.; PRIOROV, N.N. [deceased]; SAMOTOKIN, B.A., dots. (Leningrad);
SEL'TSOVSKIY, P.L., prof. [deceased]; FRUMKIN, A.P., prof.
[deceased]; KHOLDIN, S.A., prof. (Leningrad); SHAKHRAZYAN, Ye.S.,
prof. (Moskva); SHLAPOBERSKIY, V.Ya., prof. (Moskva); YUSEVICH, Ya.S.,
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K.K., red.; EEL'CHIKOVA, Yu.S., tekhn. red.

[Specialized surgery; manual for physicians in three volumes]
Ghastnaia khirurgiia; rukovodstvo dlia vrachei v trekh tomakh. Pod
red. A.A. Vishnevskogo i V.S. Levita. Moskva, Medgiz. Vol.2. [Abdominal
cavity and its organs, spinal cord, spine, pelvis, urogenital system]
Briughnaia polost' i ee organy, spinnoi mozg, pozvonochnik taz, mochepolovaia sistema] 1963. 717 p. (MIRA 16:3)

1. Deystvitel'nyy chlen Akademii meditsinskikh nauk (for Kornev, Priorov). 2. Chlen-korrespondent Akademii meditsinskikh nauk (for Lidskiy, Petrov, Kholdin).

(SURGERY)

LIDSKIY, Arkadiy Timofeyevich, prof., zasl. déyatel' nauki; ERECADZE, I.L., red.; KOKIN, N.M., tekhn. red.

[Surgical diseases of the liver and the biliary tract system] Khirurgicheskie zabolevaniia pecheni i zhelchevyvodiashchei sistemy. Moskva, Medgiz, 1963. 495 p. (MIRA 16:12)

1. Chlen-korrespondent AMN SSSR (for Lidskiy). (LIVER-DISEASES) (BILIARY TRACT-DISEASES)

LIDSKIY, A.T. (Sverdlovsk)

Book review. Grud. khir. 6 no.2:111-112 Mr-Ap '64. (MIRA 18:4)

(MIRA 18:1)

LIDSKIY, A.T., zasluzhennyy deyatel' nauki, prof. (Sverdlovsk) Review of the book "Malignant tumors; vol. 3." Vest. khir. 92 no.5:131-137 My 164.

LIDSKIY, A.T., prof. (Sverdlovsk)

Review of P.M. Medvedev's monograph "Elephantiasis of the extremities and the genital organs." Vest. khir. 93 no.11: 142-144 N '64. (MIRA 18:6)

1. Chlen-korrespondent AMN SSSR.

GUBERGRITS, A.Ya., prof.; KRAKOVSKIY, N.I., prof.; IVANOV, S.S., dotsent; LIDSKIY, A.T., prof., zasluzhennyy deyatel' nauki

Reviews and bibliography. Sov. med. 28 no.8:152-157 Ag '65.
(MIRA 18:9)

1. Chlen-korrespondent AMN SSSR (for Lidskiy).

LIDSKIY, B.I.

[Practical menual on the treatment of internal diseases] Prakticheskoe posobie po lekarstvennoy terapii vnutrennikh boleznei. Kiev. Gos. meditsinskoe isd-vo, USSR, 1957. 422 p. (MLRA 10:6) (MEDICINE)

MALIOVANOV, D.I., kand.tekhn.neuk, otv.red.; LIDSKIY, B.N., red.; PRUZHINER, V.L., red.; CHEREMNYKH, M.I., red.; CHECHKOV, L.V., red.izd-va; SHKLYAR, S.Ya., tekhn.red.

[Mechanization of drifting in mine construction] Mekhanizatsiia gornoprokhodcheskikh rabot pri stroitel'stve shakht. Moskva, Ugletekhizdat, 1959. 293 p. (MIRA 12:6) (Coal mining machinery)

Analytical design of controllers for systems with random properties. Part 1. Stating the problem, method for solution.

Avtom. i telem. 22 no.9:1145-1150 S '61. (MIRA 14:9)

(Automatic control)

16.4000 (1103, 1329, 1132)

29242 8/103/61/022/010/001/018 D274/D301

AUTHOR:

Krasovskiy, N. N., and Lidskiy, E. A.

TITLE:

Analytical design of controllers for random systems II. Optimum-control equations. Approximate method of

solution

PERIODICAL:

Avtomatika i telemekhanika, v. 22, no. 10, 1961, 1273-1278

Optimum-control equations are derived on the basis of the general method of the authors in part I of the article, (Ref. 1: Avtomatika i method of the authors in part 1 of the drotte, there is avoidabled the telemekhanika, v. 22, no. 9, 1961). The concepts and notations are the same as in part I. In Ref. 1 (Op. cit.), rules were formulated which govern the search for the optimum-control law 5 which minimizes the integral performance-criterion

 $I_{\xi} = \int M\{\omega[x(t), \xi(t)] / x_0, \eta_0, t_0 = 0\} dt = \min_{\xi}$ (1.1)

of the stochastic control-system

Card 1/5

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Analytical design of ...

$$\frac{d\mathbf{x}_{i}}{d\mathbf{t}} = \varphi_{i} \mathcal{L}_{\mathbf{x}_{1}}, \dots, \mathbf{x}_{n}, \eta \quad (\mathbf{t}), \xi \mathcal{J}$$

$$\xi = \xi \mathcal{L}_{\mathbf{x}_{1}}, \dots, \mathbf{x}_{n}, \eta \mathcal{J}$$

$$(1.2)$$

$$\xi = \xi / x_1, \dots, x_n, \eta / J \tag{1.3}$$

By these rules, ξ is determined from the condition $\left[\frac{dM(v^0)}{dt} + \omega\right]_{\xi} = \min_{\xi} \left[\frac{dM(v^0)}{dt} + \omega\right]_{\xi} = 0,$

$$\left[\frac{dM(v^0)}{dt} + \omega\right]_{\xi^0} = \min_{\xi} \left[\frac{dM(v^0)}{dt} + \omega\right]_{\xi} = 0, \tag{1.4}$$

where v is positive-definite, optimum Lyapunov-function. The partial differential equations are derived which are a consequence of of Eq. (1.4). These equations yield

$$\sum_{i=1}^{n} \frac{\partial v(x,\eta)}{\partial x_{i}} \varphi_{i}(x,\xi,\eta) + \int_{-\infty}^{\infty} v(x,\beta) d_{\beta} q(\eta,\beta) - q(\eta) v(x,\eta) + \frac{\lambda}{2} \sum_{i,j=1}^{n} \frac{\partial^{2} v(x,\eta)}{\partial x_{i} \partial x_{j}} k_{ij} \mu_{i} \mu_{j} \sigma_{i} \sigma_{j} + \omega[x,\xi,\eta] = 0$$
(1.8)

Card 2/5

29242 \$/103/61/022/010/001/018 D274/D301

Analytical design of ...

and $\sum_{i=1}^{n} \frac{\partial v(x,\eta)}{\partial x_{i}} \frac{\partial \varphi_{i}(x,\xi,\eta)}{\partial \xi} + \frac{\lambda}{2} \sum_{i,j=1}^{n} \frac{\partial^{3}v(x,\eta)}{\partial x_{i}\partial x_{j}} k_{ij} \sigma_{i} \sigma_{j} \frac{\partial (\mu_{i}\mu_{j})}{\partial \xi} + \frac{\partial \omega}{\partial \xi} = 0$ (1.9)

The optimum functions v^0 and b^0 are determined by equations (1.8) and (1.9), whereby the conditions of the problem are satisfied by that solution of the equations, for which v^0 is a positive definite form. In general, the solution of Eqs. (1.8) and (1.9) is very cumbersome. Hence, the following approximate method is proposed: Instead of system (1.2)(1.3), the auxiliary system

 $\frac{dx_i}{dt} = \psi_i[x, \eta, \vartheta], \ \xi = \xi(x, \eta, \vartheta) \tag{2.1}$

is considered, where the parameter ϑ is introduced, so that for $\vartheta=0$, the functional $\int_{-\infty}^{\infty} \epsilon(x,\xi,\vartheta) di$

can be readily minimized, and that for \Im varying from zero to unity, the functions Ψ and Ξ pass continuously into the functions φ and ϖ .

By differentiating Eqs. (1.8) and (1.9) with respect to \Im , equations can Card $\Im/5$

292h2 \$/103/61/022/010/001/018 D274/D301

Analytical design of ...

be obtained which describe the variation in the solutions ϑ and ξ with varying ϑ . In particular, v and ξ can be sought in the form of expansions:

 $\overline{v^0} = \sum_{k} a_k(\theta) \zeta_k(x, \eta), \quad \xi^0 = \sum_{k} b_k(\theta) \zeta_k(x, \eta)$ (2.2)

in terms of a system of functions $\zeta_k(x,\gamma)$ which satisfies Eqs. (1.8) and (1.9) in approximating finite combinations of Eq. (2.2), (in the means square approximation, for example). The conditions of such an approximation yield the equations for the change in the coefficients a_k and b_k

with respect to \mathcal{O} . This method is also convenient by the fact that, proceeding from the stable solution of the problem for $\mathcal{O}=0$, and varying continuously the parameters of the problem and the solution with \mathcal{O} , it is possible to obtain that branch of the solution to Eqs. (1.8) and (1.9) which also gives (for each \mathcal{O}) the solutions ensuring the passage of the trajectory of the transient process along the pre-assigned motion $z_0(t)$ (x(t)=0). An example is given involving the choice of a con-

Card 4/5

Analytical design of ...

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troller for a second-order system. There are 4 Soviet-bloc references.

SUBMITTED: March 18, 1961

4

Card 5/5

31261 S/103/61/022/011/001/014 D271/D306

16.4000 (1031)

Krasovskiy, N.N., and Lidskiy, E. A. (Sverdlovsk)

AUTHORS:

Analytical design of controllers in a system with chance properties. III. Optimum control in linear

systems. Minimum mean-square error

PERIODICAL: Avtomatika i telemekhanika, v. 22, no. 11, 1961,

1425-1431

TEXT: The authors aim at determining an optimum control law for linear stochastic control systems and analyze conditions, in which a solution is possible. It is assumed that the automatic control system is defined by a linear motion equation in terms of usual coordinates, a variable $\eta(t)$ describing chance properties of the system which is of a Markov character, and of a random pulse function representing interference. Transients are evaluated by a minimizing integral, and the problem is, therefore, that of finding a control law which would ensure a probable asymptotic motion stability of X = 0. The method used is based on Lyapunov's optimal

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functions v^0 ; one of the conditions which v^0 must satisfy is the Silvester criterion. Two cases are considered: A) When the variable $\eta(t)$ can assume a finite number of values, B) When the function $q(\eta, \beta)$ /Abstractor's note: Not defined in the present paper / has

a density $p(\eta, \beta)$. The function v^0 is of the form $v^0 = \sum_{i,j=1}^{b} b_{ij}(\eta) x_i x_j$. The coefficients $b_{ij}(\eta)$ are determined by a system of algebraic equations in the case A), and in the case B) a system of integral equations can be obtained which extends to stochastic systems the equations first derived by A. M. Lyetov (Ref. 4: Avtomatika i telemekhanika, v. 21, no. 4, 5, 6, 1960 and v. 22, no. 4, 1961). The method for approximate solution was previously described by the authors. It is illustrated in the case of the system defined by a linear motion equation. A parameter v is introduced; v = 0 when there are n independently controlled channels, and v = 1 when only one control affects all coordinates. When v = 0, the optimal func-

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tion is of the form $v^0 = \sum_{i=1}^{n} b_{ii} x_i^2$. When $v^0 > 0$, a system of differential equations is obtained of the form:

$$\frac{\partial b_{1j}^{(1)}}{\partial \theta} = \phi_{1j}^{(1)} (b_{11}^{(m)}, \dots, b_{nn}^{(m)}, \theta) \quad (i=1, \dots, n; j=1; m=1, \dots, k) \quad (4.6)$$

These equations must be integrated in the interval $0 \leqslant \vartheta \leqslant 1$ taking into account the initial conditions, at $\vartheta = 0$. The question whether the integration is possible is equivalent to the problem of existence of an optimum solution. Assuming the existence of a permissible control signal it is proved than an optimum control also exists. The existence of a permissible signal ensures the convergence of the integral of the mean-square error if the system is linear. The proof of the possibility of finding optimum control is based on

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auxiliary systems with the parameter ϑ ; it is assumed that interference depends only on mismatch. An equation is derived in which the left-hand is a function of the mathematical expectation of optimal function and the right-hand side is a quadratic expression. There

SUBMITTED: March 18, 1961

Card 4/4

26728 s/040/61/025/003/U05/026 D208/D304

16,6100

16.8000 (1031,1344)

AUTHORS:

Krasovskiy, N.N., and Lidskiy, E.A. (Sverdlovsk)

TITLE:

Analytic construction of regulators in stochastic systems with integrals on the velocity of change of the regulating influence

PERIODICAL: Akademiya nauk SSR. Otdeleniye tekhnicheskikh nauk. Prikladnaya matematika i mekhanika, v. 25, no. 3, 1961, 420 - 432

TEXT: A regular system is considered, in which the transition process may be written in stochastic differential equations of perturbed motion

 $\frac{dx_{i}}{dt} = f_{i} [x_{1}, \dots, x_{n}, \xi, \eta(t)] \quad (i = 1, \dots, n) \quad (1.1)$

where \mathbf{x}_i are the deviations of the actual values of the coordina-

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tes of the regulated vector quantity from the original (unperturbed) value $\mathbf{x_i} = 0$ ($\mathbf{i} = 1, \ldots, n$) \mathbf{g} is the regulating influence. Since the system is subject to random change, the random variable $\eta(\mathbf{t})$ is included in the arguments of the function. It is assumed that \mathbf{f} , are known continuous functions satisfying the Lipshits conditions [Abstractor's note: Conditions not stated] in some region \mathbf{g} of the space $(\mathbf{x}, \mathbf{g}, \mathbf{\eta})$, $\mathbf{f_i}(\mathbf{0}, \ldots, \mathbf{0}, \mathbf{\eta}(\mathbf{t})) = \mathbf{0}$, and the variable $\mathbf{\eta}(\mathbf{t})$ describes the Markov random process [Abstractor's note: Process not stated]. The correct formulation of \mathbf{g} in the regulator is obtained from

 $J = \int_{0}^{\infty} M \{ \omega \{ x_{1}(t), \ldots, x_{n}(t), \xi(t), \dot{\xi}(t) \} \} dt = \min$ (1.2)

where M denotes the expectation of the random quantity, which is a given non-negative function of the arguments. The equation of the optimum regulator is of the form

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 $\S = [x_1, ..., x_n, \S, \eta].$ (1.3)

The realization of the random variable $\eta(t)$ is a power function $\eta^{(p)}(t)$. If η in (1.3) is chosen then for each realization and initial condition $(x_{i0}, \xi_0, t = t_0)$, (1.1) and (1.3) have a continuous realization $x^{(p)}(x_0, \xi_0, t_0, t, \eta^{(p)})$, $\xi^{(p)}(x_0, \xi_0, t_0, t, \eta^{(p)})$ of x(t), $\xi(t)$. If the random process takes place in the space $(x_1, \ldots, x_n, \xi, \eta)$, then it is described as the Markov random process. Let $\{x(t), \xi(t), \eta(t) / x_0, \xi_0, \eta_0, t_0 \text{ denote a Markov random vector-function with initial conditions <math>x_1, x_{i0}, \xi = \xi_0, \eta = \eta_0$ at $t = t_0$, and giving for $t > t_0$ a solution of (1.1) and (1.3). It is assumed that f_1 and ξ are continuous in the space (x, ξ) and that the region G is given by $\{-\infty < x_1 < \infty \ (i = 1, \ldots, n), -\infty \}$

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< $\xi<\infty$, $\gamma_1\leqslant\eta\leqslant\eta_2$. J is given by

$$J_{\xi}[x_0, \xi_0, \eta_0] = \int_0^\infty M\{\omega[x(t), \xi(t), \dot{\xi}(t)]/x_0, \xi_0, \eta_0, t_0 = 0\} dt \qquad (2.3)$$

The problem consists of determining $g^0[x, g, n]$, satisfying a) (2.1.) The unperturbed motion x = 0, g = 0 with $g = g^0$ must be asymptotic to the probability relative to any initial perturbation. b) Condition (2.2.). For any initial conditions (2.3.) must be the

$$J_{\xi_0}[x_0, \xi_0, \eta_0] = \min_{\xi} J_{\xi}[x_0, \xi_0, \eta_0]$$
 (2.4)

must hold. The problem is solved by means of the optimum Lyapunov function vo which is required to satisfy the following conditions:

$$v^{0}(x, \xi, \eta) \gg w(x, \xi) > 0 \text{ for } \{x, \xi\} \neq 0$$

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Analytic construction of ... $\frac{26728}{8/040/61/025/003/005/026}$ $w(x, \xi) \to \infty \text{ for } \{x, \xi\} \to \infty;$ $\text{Condition 3.2. } (\frac{\text{dM } \{v^0\}}{\text{dt}}) = -\omega[x_1, \dots, x_n, \xi, \xi^0]; \qquad (3.1)$ $\text{Condition 3.3. } (\frac{\text{dM } \{v^0\}}{\text{dt}})_{\xi^0} + \omega[x_1, \dots, x_n, \xi, \xi^0] = \min_{\xi} \left[(\frac{\text{dM } \{v^0\}}{\text{dt}})_{\xi} + \omega[x_1, \dots, x_n, \xi, \xi] \right]; \qquad (3.2)$ $\text{Condition 3.4.: } v^0(x, \xi, \eta) \text{ may have an infinitely small upper volumed, and } v^0[x, \xi, \eta] \to 0 \text{ as } \omega[x, \xi, \eta] \to 0. \text{ The solutions for } v^0 \text{ and } \xi^0 \text{ are given by}$ $\sum_{i=1}^n \frac{\partial v^a(x, \xi, \eta)}{\partial z_i} /_i[x, \xi, \eta] + \frac{\partial v^a(x, \xi, \eta)}{\partial \xi} v^a(x, \xi, \eta) + \omega[x, \xi, \xi^0] = 0$ Card 5/9

Analytic construction of ...

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$$\frac{\partial v^{\circ}(x,\,\xi,\,\eta)}{\partial \xi} + \frac{\partial \omega\left[x,\,\xi,\,\zeta^{\circ}\right]}{\partial \zeta} = 0$$

(4.8)

where q = 1-p has its usual significance in the probability theory. These equations may be solved by approximation methods. The problem of choice of parameters of the linear system minimizing the quadratic criterion of quality is then discussed. From the works of N.G. Chetayev (Ref. 2: Ustoychivost' dvizheniya (Stability of Motion), Gostekhizdat M., 1956), A.A. Krasovskiy and A.A. Fel'dbaum (Ref. 14: Vychislitel'nyye ustroystva v avtomaticheskykh sistemakh (Calculating Structure in Automatic Systems) Fizmatgiz, 1959) and J. Bertram and R. Kalman the following equations are obtained

$$\sum_{i=1}^{2} \frac{\partial v^{\circ}(x, \xi, \eta_{l})}{\partial x_{i}} \left[\sum_{j=1}^{2} a_{ij}(\eta_{l}) x_{j} + m_{i} \xi \right] + p_{lk} \left[v^{\circ}(x, \xi, \eta_{k}) - v^{\circ}(x, \xi, \eta_{l}) \right] - \frac{1}{4} \left[\frac{\partial v^{\circ}(x, \xi, \eta_{l})}{\partial \xi} \right]^{2} = -x^{1}_{1} - x_{2}^{2} - \xi^{2} \quad (l = 1, 2; k \neq l)$$

$$(6.6)$$

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Analytic construction of ...

$$v^{\circ}(x_{1}, x_{2}, \xi, \eta_{l}) = \sum_{i, j=1}^{2} \left[b_{ij}(\eta_{l}) x_{i} x_{j} + b_{i}(\eta_{l}) x_{i} \xi\right] + c(\eta_{l}) \xi^{2} \quad (l = 1, 2)$$
(6.7)

By substituting the right-hand side of (6.7) in (6.6) and equating coefficients of like powers of x_i and f, the equations for f and f and f and f and f and f are problem of the existence of an optimum control law for the case

$$P[\gamma_i \rightarrow \gamma_j \text{ after time } \triangle t] = p_{ij} \triangle t + o(\triangle t) (i \neq j).$$
 (6.3)

This is the question of the existence of a solution v^0 of the system (6.6). A regularization law $\xi=\zeta(q)$ is said to be possible if by this law the system

$$\frac{dx_{i}}{dt} = \sum_{j=1}^{2} a_{ij}(\eta) x_{j} + m_{i} \xi \quad (j = 1, 2)$$
 (6.1)

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Analytic construction of ...

approaches the probability asymptotically, and the integral of (6.3) has a finite value for any initial conditions. The problem of the existence (and optimum properties) of a control is investigated by F.M. Kirillova. In the case where a possible control exists, the existence of an optimum control is investigated by considering the system

$$\frac{dx_{i}}{dt} = \partial \left[\sum_{j=1}^{2} a_{ij}(\eta) x_{j} + m_{i} \tilde{S} \right] - (1 - \vartheta)x_{i} \quad (i = 1, 2; 0 \leq \vartheta \leq 1),$$
(7.1)

and

$$\dot{\xi} = \xi[x_1, x_2, \xi, \eta; \vartheta]. \tag{7.2}$$

It is required that for every ϑ \in [0, 1] the system is asymptotic to the probability and that

$$J_{\xi}[x_{10}, x_{20}, \xi_{0}, \eta_{0}, \vartheta] =$$

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$$= \int_{0}^{\infty} M \{ [x_1^2(t) + x_2^2(t) + \xi^2(t) + \xi^2(t)] / x_{10}, x_{20}, \xi_0, \eta_0, t_0 = 0 \}$$

$$dt = \min$$
(7.3)

The optimum condition is found to be $\vartheta=1$. There are 15 references: 13 Soviet-bloc and 2 non-Soviet-bloc. The references to the English-language publications read as follows: R. Bellman, Dinamic programming and stochastic control processes. Inform. and Control, vol. 5, p 228-239, 1958; R.E. Kalman a. I.E. Bertram, Control System Analysis and Design Via the "Second Method" of Lyapunov. Paper Amer. Soc. Mech. Engr., no. 2, 1959.

SUBMITTED: March 7, 1961

Card 9/9

Stabilization of stochastic systems. Prikl. mat. 1 meth. 25 no.5:824-835 S-0 '61. (MIRA 14:10)

(Automatic control)

LIDSKIY, E. A.

"Stability of solutions of a stochastic system,"

Report presented at the Conference on Applied Stability-of-Motion Theory and Analytical Mechanics, Kazan Aviation Institute, 6-8 December 1962

36031, \$/040/62/026/002/006/025

D299/D301

AUTHOR:

16,8000

Lidskiv. E.A. (Sverdlovsk)

TITLE:

1 %

On analytic design of controllers in random systems

PERIODICAL:

Prikladnaya matematika i mekhanika, v. 26, no. 2,

1962, 259 - 266

TEXT: The design of an optimal controller in a stochastic linear system is considered with a mean-square error integral criterion. The optimal Lyapunov function is constructed by the small-parameter method. This work is a continuation of A.M. Letov (Ref. 3: Analiticheskoye konstruirovaniye regulyatorov, part I-IV. Avt. i telemekh., 1960, 4-6, and 1961, no. 4) and N.N. Krasovskiy and E.A. Lidskiy (Ref. 4: Analiticheskoye konstruirovaniye regulyatorov v sistemakh so sluchaynymi svoystvami, part I-III. Avt. i telemkh. 1961, no. 9-11). The transient process is described by

 $\frac{\mathrm{d}\mathbf{x}}{\mathrm{d}\mathbf{t}} = \mathbf{A}(\eta)\mathbf{x} + \mathbf{c}(\eta) \in$ (1.1)

where x and c are n-dimensional vectors, (t) - a random quality, Card 1/3

S/040/62/026/002/006/025 D299/D301

On analytic design of controllers ...

 $A(\eta)$ - a matrix of type $//a_{ij}/n$; the scalar $f(x, \eta)$ represents the controller action. The Markov process $\eta(t)$ is described by means of the functions $q(\alpha)$, $q(\alpha, \beta)$. The controller $f(x, \eta)$ is called optimal for system (1.1) if it minimizes the man of the integral meansquare error. F is constructed by the method of Lyapunov functions, based on dynamic-programming techniques, as applied to the stochastic system (1.1). The concepts and notations of Ref. 4 (Op.cit.) are used. Lyapunov's function v and the optimum controller F are determined in the form of series in the small parameter μ , viz.:

 $\mathbf{v}(\mathbf{x}, \eta, \mu) = \sum_{k=0}^{\infty} \mu^k \mathbf{v}_k, \quad \exists (\mathbf{x}, \eta, \mu) = \sum_{k=0}^{\infty} \mu^k \exists_k \quad (1.3)$

(thereby it becomes unnecessary to solve a system of quadratic integral equations for the coefficients of the series). Now the problem reduces to the successive calculation of the coefficients \mathbf{v}_k and \mathbf{v}_k are linear systems. The convergence of the thereby obtained series, to $\mathbf{v}(\mathbf{x}, y)$ and (\mathbf{x}, y) is proved. Two cases are considedard 2/3

On analytic design of controllers ... S/040/62/026/002/006/025

red: $q(\alpha) = \mu r(\alpha)$, $q(\alpha, \beta) = \mu r(\alpha, \beta)$, (1.

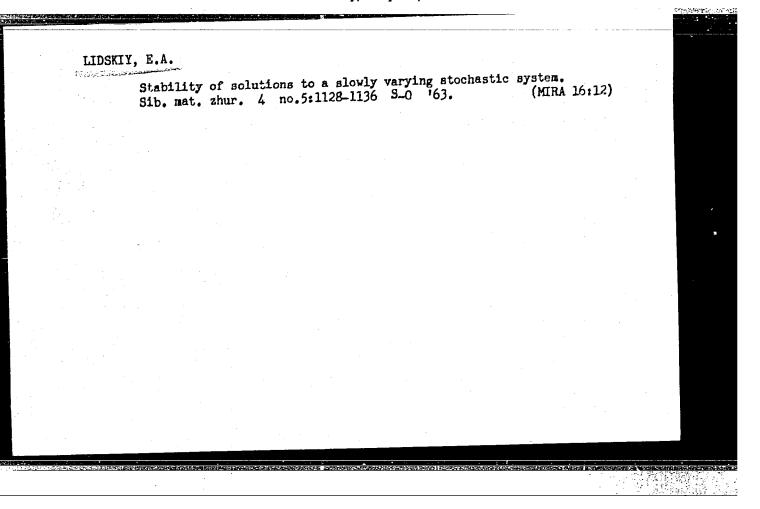
where u is a small parameter, and

 $dx/dt = Ax + \mu R(\eta)x + c^{2}, \qquad (1.5)$

where $\mu R(\eta)x$ denotes the terms which depend on $\eta(t)$ and R is a matrix. The obtained results are formulated as a theorem: If the coefficients A and c of system (1.1) are continuous on the interval $\eta_1 = \eta_2 = \eta_2$ and the following conditions hold: 1) The vectors $c(\eta)$, $A(\eta)c(\eta)$, ..., $A^{n-1}(\eta)c(\eta)$ are linearly independent; 2) Either the transition probabilities $\eta = d \to \eta = \beta$ are small, or the right-hand sides of (1.1) can be expressed in the form (1.5), then Lyapunov's function v and the optimum controller ξ can be expressed by the series (1.3). The coefficients of the series are found by solving a system of algebraic- or of integral equations. There are 12 references: 10 Soviet-bloc and 2 non-Soviet-bloc (in translation).

Card 3/3

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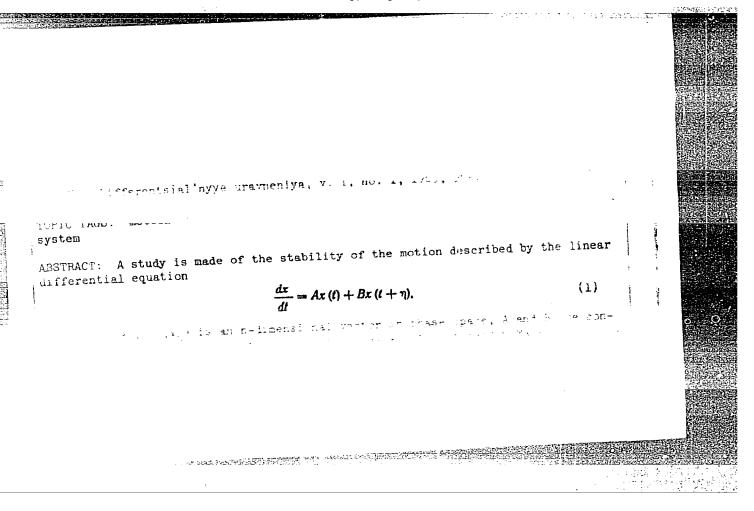


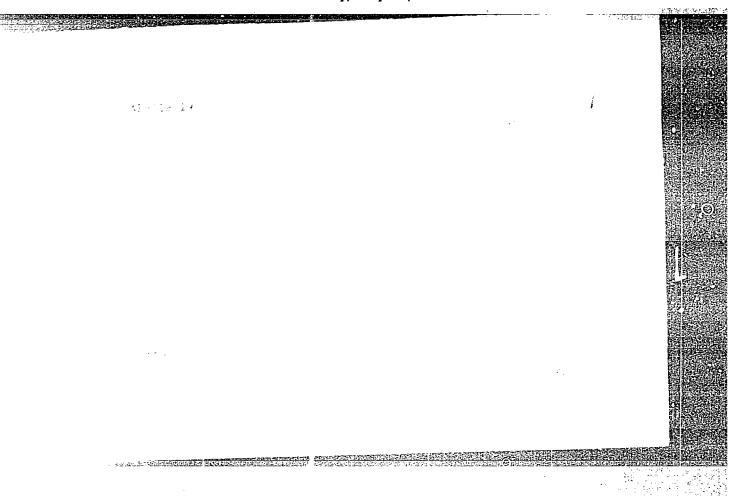
LIDENIY, E.A. (Sverdlovsk)

Optimum control of systems with random properties. Prikl.
mat. i mekh. 27 no.1:33-45 Ja-F '63. (MIRA 16:11)

"APPROVED FOR RELEASE: Monday, July 31, 2000

CIA-RDP86-00513R000929820





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ACC NR: AR6000

SOURCE CODE: UR/0124/65/000/009/A010/A010

AUTHOR: Lidskiy, E. A.

TITLE: Stability of solutions in stochastic systems

SOURCE: Ref. zh. Mekhanika, Abs. 9A94

REF SOURCE: Tr. Mezhvuz. konferentsii po prikl. teorii ustoychivosti dvizheniya i analit. mekhan., 1962. Kazan', 1964, 99-102

TOPIC TAGS: stability criterion, stochastic process, matrix element

ABSTRACT: The equation of the following form is considered:

$$\dot{x} = A(t, \eta)x$$
 (1)

where x is an n-dimensional vector, $A(t, \eta)$ is the matrix $\|a_{ij}\|_1^n$, bounded and continuous together with its first and second derivatives with respect to N; $\mathcal{N}(t)$ is a stochastic function. If, for any fixed $\eta = \emptyset$, the solution of (1) satisfies the conditions of asymptotic stability for unsteady determinate systems, then it is required to show boundedness imposed on the properties of the stochastic function Λ (t). This, combined with the previous assumptions, can become sufficient for asymptotic stability of the solution of (1) in probability. The author, by fixing the magnitude Λ = \times , constructs the function $V(t,x,\times)$ in a positive definite

Card 1/2

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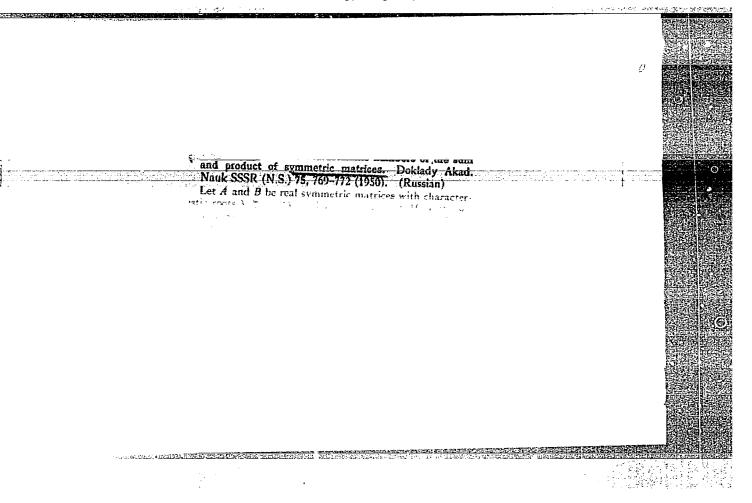
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η (t) as a random quar of the derivitive is a stochastic differentia	ned after the Lyapunov funtity, and determines the satisfied. The conclusional equations (1), and cond. S. V. Kalinin Translat	conditions under which s are applied to the itions of asymptotic	ch the negativity case of linear	
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LIDSKIY, V.B. (Moskva)

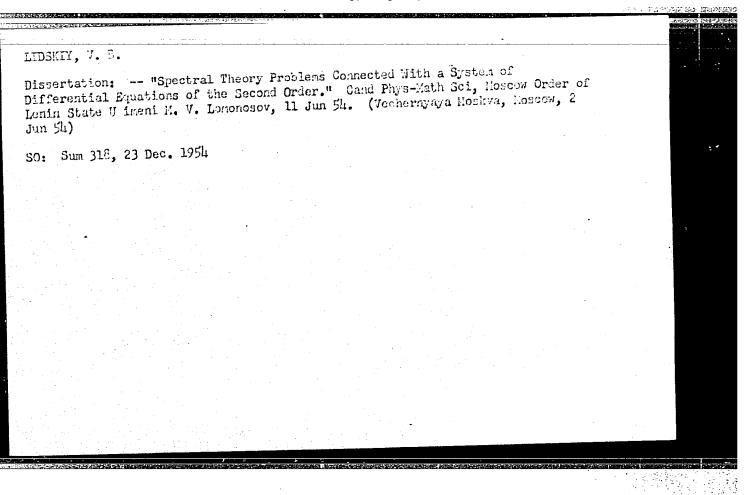
Fourier expansion of a non-self-conjugate elliptic operator in terms of main functions. Mat. sbor. 57 no.2:137-150 Je '62.

(MIRA 15:6)

(Fourier series) (Operators (Mathematics))





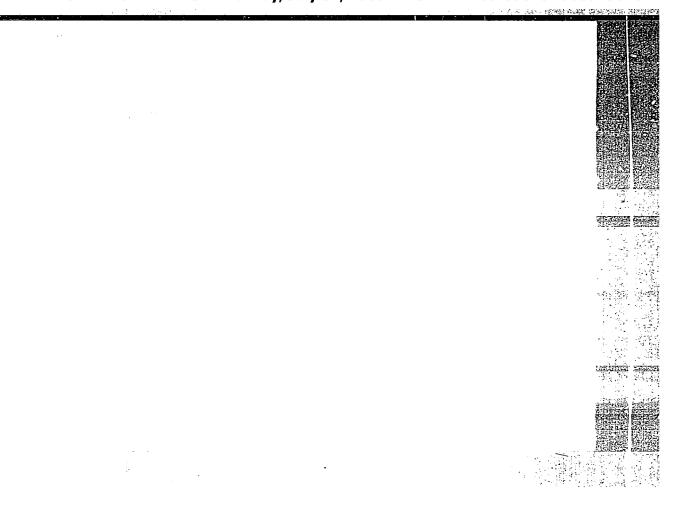


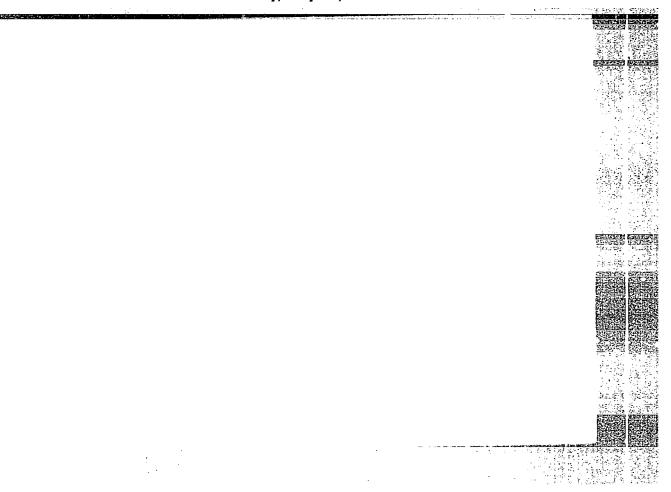
LIDSKIY, V.B.

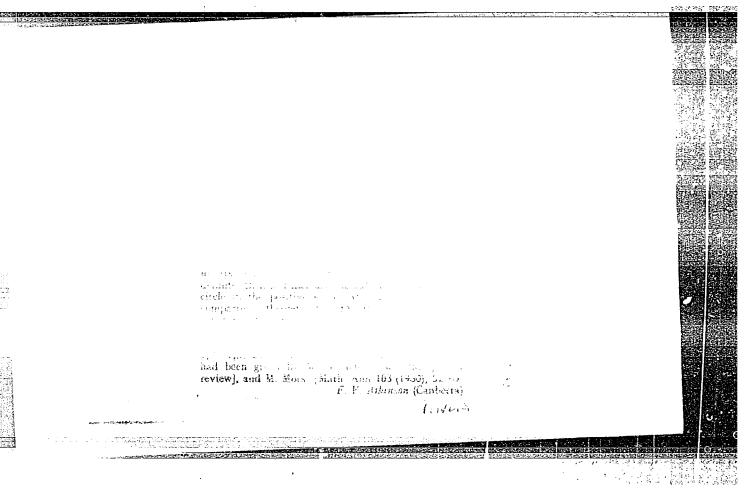
Number of solutions with integrated square for a system of differential equations - y' + P(t) y = \lambda y \ . Dokl.AN SSSR 95 no.2:217-220 Mr '54.

(MIRA 7:3)

(Differential equations, Linear)

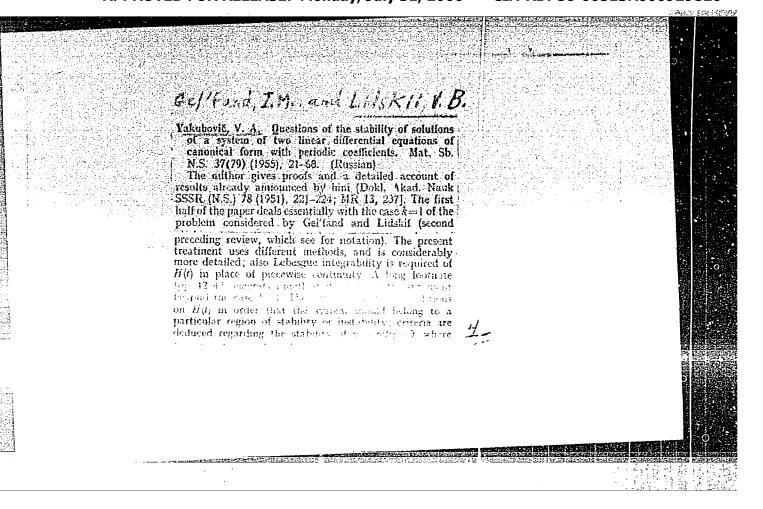


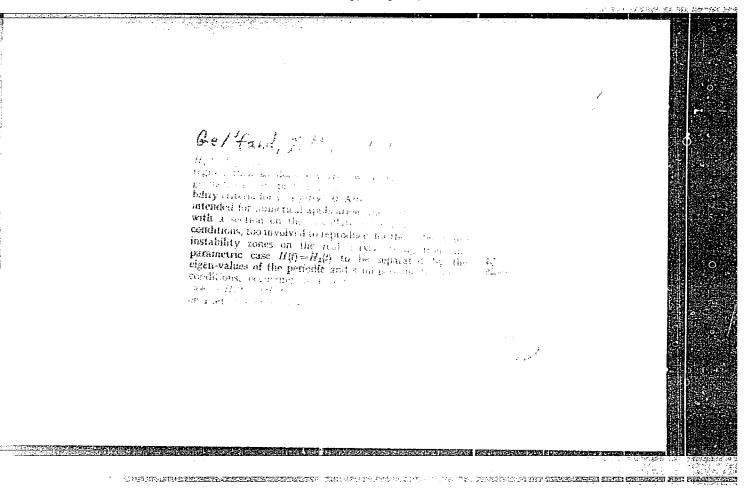




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LIDSKIY VB

SUBJECT

USSR/MATHEMATICS/Differential equations

CARD 1/1

PG - 120

AUTHOR

LIDSKIJ V.B., NEJGANS M.G.

TITLE

On stability criteria of a system of differential equations

with periodic coefficients.

PERIODICAL

Priklad. Mat. Mech. 19. 625-627 (1955)

reviewed 7/1956

The authors consider the system of k differential equations

(1)
$$y^{n} + (n^{2}\mathbf{E}_{k} + \lambda \mathbf{Q}(t))y = 0,$$

where Q(t) is a real symmetric periodic matrix: $Q(t+\pi) = Q(t)$, E_k - unit matrix, n - integer, y(t) a vector $(y_1(t), \dots, y_n(t))$, λ - real parameter.

Starting from Krein's theorem on the monotone motion of the multiplicators on the unit circle (Doklad Akad. Nauk 73, 445-448 (1950)) the authors establish the following criterion:

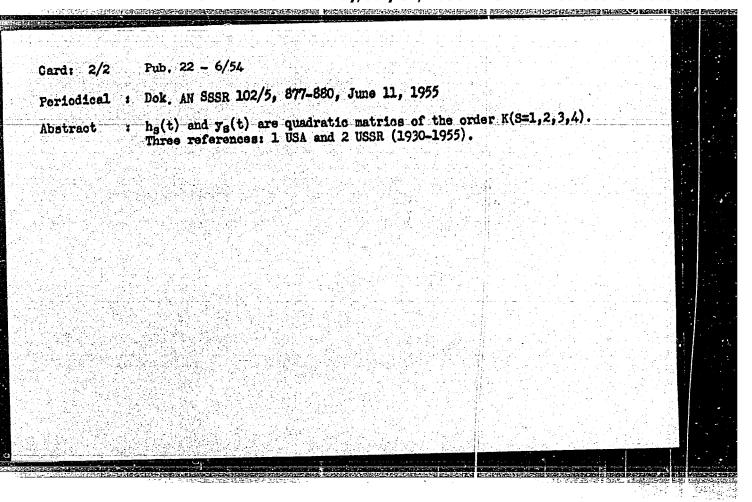
Let Q(t) be of constant sign and a different from zero. If now

 $|\sin n\xi| \cdot |Q(\xi+t)|d\xi < 2n$ 06t6A;

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USSR/Mathema	OSK/Y/ V.B. tics = Oscillating theorems		0 .
Card 1/2	Pub. 22 _ 6/54		
Authors	Makiy, V. B.		
71tle	Oscillating theorems for the canonical system of diff	Grential equations	
Periodical	Dok. AN SSSR 102/5, 877-880, June 11, 1955		
Abetract	A proof is presented for the theorems dealing with or	scillating solutions the matrix form:	$\cdot \cdot $
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V.B. LIDSKIT, V.B.

USSR/MATHEMATICS/Functional analysis

PG - 666 CAED 1/2

SUBJECT AU THOR

LIDSKIJ V.B.

On the completeness of the system of eigenfunctions and the

TITLE

associated functions of a non-selfadjoint differential operator.

Doklady Akad. Nauk 110, 172-175 (1956) PERIODICAL

reviewed 3/1957

Let be given a non-selfadjoint differential operator

$$Ly = y^n + p(x)y$$

in the Hilbert space \mathcal{L}_2 of the functions being integrable with square on the real axis. Let the complex function p(x) be representable in the form

$$p(x) = q(x) + r(x).$$

Here let q(x) be a real function such that

$$\lim_{x \to \infty} q(x) = +\infty$$

and let r(x) be a complex function the modul of which increases slowlier than q(x). Let the functions q(x) and r(x) be bounded and summable on the By aid of a theorem due to Kel'dys (Doklady Akad. Nauk 77, No.1 (1951)) as his principal result the author proves the following theorem: Let for any &,

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LIDSKIY, V.B

SUBJECT USSR/MATHEMATICS/Functional analysis CARD 1/2 PG - 875

AUTHOR LIDSKIJ V.B.

TITLE A theorem on the spectrum of a persurbed differential operator.

PERIODICAL Doklady Akad. Nauk 112, 994-997 (1957)

reviewed 6/1957

The author considers the differential operator

$$Lu = -\Delta u + p_1(x)u,$$

where Δ is the Laplace operator, $x(x_1,x_2,\ldots,x_n)$ is a point of the E_n and $p_1(x)$ is a continuous complex function. Let the region of definition D(L) be a linear manifold which lies dense in the Hilbert space L_2 of the complex functions the square of which is integrable over the whole E_n . Let L be closed and have the resolvent R_{λ} with the region of regularity δ . Besides the perturbed differential operator

$$\mathbf{\tilde{L}u} = -\Delta \mathbf{u} + (\mathbf{p}_1(\mathbf{x}) + \mathbf{p}_2(\mathbf{x}))\mathbf{u}$$

Doklady Akad. Nank 112, 994-997 (1957)

CARD 2/2

PG - 875

is considered, where p2(x) is a continuous function and

 $\lim_{|x| \to \infty} p_2(x) = 0.$

Furthermore let $D(L) \equiv D(L)$.

Theorem: In has a resolvent R_{λ} ; this resolvent is regular in 6 with the exception of at most countably many points which have no accumulation point in 6. These points are poles of R_{λ} .

INSTITUTION: Physical-Technical Institute, Moswow.

APPROVED FOR RELEASE: Monday, July 31, 2000

CIA-RDP86-00513R0009298200

LIDSKIY, V. B.

PA - 2907

AUTHOR: TITLE:

On the Conditions for Total Continuity of the Resolvent of a non-selfadjoined Differential Operator. (Usloviya polnoy nepre-LIDSKIY.V.B. rywnosti rezolventy nesamosopryazhennogo differentsial'nogo

Doklady Akademii Hauk SSSR, 1957, Vol 113, Nr 1, pp 28 - 31

PERIODICAL:

(v.s.s.R.) Received: 5 / 1957 Reviewed: 6 / 1957

ABSTRACT:

In the present paper the differential equation y'' + p(x)y = y is investigated with p(x) denoting the complex function q(x) + ir(x). In this case q(x) and r(x) denote real functions, which are infinitely summable in every arbitrary interval of the real axis. In connection with this equation the operator Ly = -y" + p(x)y in the HILBERT space L2 (-\infty, +\infty) operator Ly = -y" + p(x)y in the Hilbert space $L_2(-\infty, +\infty)$ is investigated. The domain of definition D of the operator L is formed by the functions $y(x)\in L_2(-\infty, +\infty)$, which, together with their derivatives, are absolutely continuous in every finite intertheir derivatives, are absolutely continuous in must hold. val. Besides, the equation $-y^n + p(x)y \in L_p(-\infty, +\infty)$ must hold. The present paper furnishes the conditions imposed on the function p(x), so that the operator I has a totally continuous resolvent and therefore a discrete spectrum. he paper consists of the proof of the following three theorems:

Card 1/3